

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Canceled)

Claim 2 (Currently Amended) The LCD device according to Claim [[1]] 4, wherein said alignment film layer material comprises one selected from the group comprising: SiN_x , hydrogenated amorphous silicon, SiC , SiO_2 , glass, Al_2O_3 , CeO_2 , SnO_2 , ZnTiO_2 , and InTiO_2 , InZnO_2 , and other organic or inorganic dielectric film and conducting films.

Claim 3 (Currently Amended) The LCD device according to Claim [[1]] 4, wherein said alignment film layer of inorganic or organic material is diamond-like carbon.

Claim 4 (Currently Amended) ~~A liquid crystal display~~ The (LCD) device according to Claim 1, comprising:

a first substrate having a grooved surface profile;

an alignment film layer of inorganic or organic material formed on said grooved surface and having said grooved surface profile, said alignment film of inorganic or organic material having 90° meta-stable alignment states eliminated at the surface of said alignment film layer and having an increased alignment force for constraining deposited LC material to an alignment direction parallel to the grooves; and

a second substrate having a flat surface profile and an alignment film layer formed thereon, said second substrate aligned opposite said first substrate for forming a plurality of LCD cells having said liquid crystal (LC) material deposited therein, said LC molecules aligning parallel to the alignment direction of said second substrate

~~wherein a second substrate aligned opposite said first substrate includes a top alignment layer having a flat surface profile.~~

Claim 5 (Currently Amended) The LCD device according to Claim ~~[[1]]~~ 4, wherein a second substrate aligned opposite said first substrate includes a top alignment layer having a grooved surface profile.

Claim 6 (Currently Amended) The LCD device according to Claim ~~[[1]]~~ 4, wherein a surface anchoring energy is increased as compared to LC material deposited between flat substrate surfaces.

Claim 7 (Currently Amended) The LCD device according to Claim ~~[[1]]~~ 4, wherein aligning the LC molecules parallel to the grooves enables decreased potential energy of said LC molecules.

Claim 8 (Currently Amended) The LCD device according to Claim ~~[[1]]~~ 4, wherein said alignment film of material comprises one selected from the group comprising: SiN_x , hydrogenated amorphous silicon, SiC, SiO_2 , glass, Al_2O_3 , CeO_2 , SnO_2 , ZnTiO_2 , and InTiO_2 , InZnO_2 , and other organic or inorganic dielectric film and conducting films.

Claim 9 (Currently Amended) The LCD device according to Claim ~~[[1]]~~ 4, wherein said grooved surface profile of said alignment film is sinusoidal.

Claim 10 (Currently Amended) The LCD device according to Claim [[1]] 4, wherein said grooves are not continuous along a lengthwise direction.

Claim 11 (Original) The LCD device according to Claim 10, wherein the grooves are terminated in a length direction and restart in a slightly different location lengthwise with different height and width of said grooves.

Claims 12-17 (Canceled)

Claim 18 (Currently Amended) The LCD device according to Claim [[1]] 4, wherein said alignment film is subjected to an incident ion beam in a direction parallel to a groove direction to avoid weak anchoring and 90 degree meta-stable states in liquid crystal (LC) material resulting in said increased alignment force.